SafeMinds Summary Comments
on the Draft IACC Strategic Plan
September 30, 2008

Background: Creation of a Strategic Plan (SP) for Autism Research was specified by Congress through the Combating Autism Act (CAA). The Plan was to be developed by the Interagency Autism Coordinating Committee (IACC). The NIMH, led by Dr. Tom Insel, was designated as the coordinating agency within the government for autism research. The CAA appropriated $920 million in spending for autism efforts over 5 years. Some of this money was to go to awareness for screening and diagnosis as well as to establishment of treatment networks but the bulk of it, approximately $744 million, was for scientific studies, both basic and clinical. NIMH crafted a process for creating the SP which included establishing Diagnostic and Implementation Workgroups to advise the IACC and periodic opportunities for public comments. The SP is currently in an advanced draft form and will be sent to the IACC for approval in November. A public comment stage for input on the current draft ends today, September 30. This document in conjunction with its cover letter summarizes SafeMinds' views on the current draft. (Other documents have provided views of the SP development process itself and earlier versions of the SP.)

Mission, Vision, Values, Themes: The draft SP written by NIMH staff with input from the Diagnostic Workgroup contains sections on mission, vision, core values, and cross-cutting themes. (See the complete draft at http://www.nimh.nih.gov/research-funding/scientific-meetings/recurring-meetings/iacc/strategic-plan/2008/iacc-strategic-plan-august-2008.pdf.) These sections were approved by the IACC in the summer. SafeMinds feels that these sections omit crucial messages which should be adopted in the final plan. They include: (a) recognition of autism as a national emergency; (b) commitment of resources necessary to address the crisis; (c) acknowledgment of the true rise in the number of children with autism; and (d) the importance of prevention of future cases through elimination of environmental causes. In addition, wording in the document implies that environmental factors science in autism is weaker or less developed than it really is, conveying that such research is "risky". In actuality there are many studies supporting the role of the environment in autism etiology, and there are sophisticated resources available for studying the subject. The wording should be changed to reflect this reality.

Objectives: A total of 35 research objectives were identified by NIMH staff and the Diagnostic Workgroup. The objectives were grouped under 6 questions in the SP document. The objectives are shown in the table which follows, with the 6 questions highlighted in blue. Each objective was designated by the Workgroup as a long term (LT) or a short term (ST) project, depending on how quickly the Workgroup felt it could be accomplished. SafeMinds feels that several important objectives are missing or are not worded properly. Recommended changes are noted in green type in the table and primarily center on the following: (a) addition of an adult prevalence study; (b) addition of several studies to investigate vaccinations; (c) specifying that mercury must be studied; and (d) removing genetics-only studies.

Budget Allocations: The Implementation Workgroup assigned budget estimates, often a range, to the 35 objectives. The total budgeted amount for all 35 objectives in the current draft is $495.5 million when the higher ranges are calculated. This total falls short of the $744 million specified by Congress in the CAA. Moreover, certain areas of research are receiving a higher priority than optimal and other areas are underfunded, particularly the areas of environmental factors and treatment. SafeMinds has recommended a number of critical changes, also shown in green type in the table and summarized as follows: (a) adding dollars for the adult prevalence study; (b) reducing allocations for diagnostic dissemination; (c) greatly increasing funds for biobanking; (d) greatly increasing funds for biological mechanisms research; (e) greatly increasing the budget for environmental factors and gene-environment interaction studies, including vaccines and mercury; (f) eliminating allocations for gene-only studies; (g) greatly increasing the allocations for treatment research; and (h) adding dollars for more studies on the effectiveness of services, particularly for teens and adults. The total budget with these changes comes to $744 million, the amount in the CAA. SafeMinds feels this is a minimum amount, and the allocation suggestions are being made solely to fit within the constraints of the CAA. However, given the autism crisis, SafeMinds feels that much more effort should be expended and that a critical component missing from the draft SP is an analysis of the cost of disease. This analysis should inform Congress of the necessary dollars that should be spent on autism research, not what is currently in the CAA.

Accountability & Evaluation: Also missing from the draft SP are definitions of success, approaches to define success, mechanisms to evaluate success, a process for accountability, and a process to modify the SP over its 5 year life to reflect changes in needs and scientific progress. The NIH tried to assign responsibility or "leadership" for each objective to various federal agencies and private organizations which had been invited to be members of the Implementation Workgroup. Autism Speaks refused in principle to be assigned responsibility for objectives, saying that this was the government's job, a position with which SafeMinds concurs. Tellingly, there were many objectives for which no Workgroup member wanted responsibility and the objective either remained unassigned or was arbitrarily assigned to an NIH "ACC" which has not been defined for the public. Rather than piecemeal "leadership" responsibility, SafeMinds feels that ultimate oversight of the implementation and evaluation of all objectives should fall to an Autism Advisory Board comprised primarily of advocacy organizations. This panel would have a better chance of ensuring accountability of the federal agencies for producing productive research and would be in the best position to define success that meets the needs of individuals with ASD and the public at large.

Draft IACC Strategic Plan Objectives and Budget Allocations with Recommended Modifications
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Objective [ST=Short Term LT=Long Term]	Draft SP Budget ($)	SafeMinds Proposed Budget ($)	NIH "Leadership" Assignment [NIH Assigned Supporters]*	Comments [suggested changes are in green type]
1. When Should I Be Concerned?				
ST 1.1 - Develop, with existing tools, at least one efficient diagnostic instrument (e.g., briefer, less time intensive) that is valid in diverse populations for use in large-scale studies by 2011.	2.5 million	2.5 million	NIMH [AS,AC,ARI]	
ST 1.2 - Validate and improve the sensitivity and specificity of existing screening tools for detecting ASD through studies of the following community populations that are diverse in terms of age, socio-economic status, race, ethnicity and level of functioning by 2012. -School aged children -General population (vs. clinical population)	5 million	5 million	NICHD [AC,AS]	
ST 1.3 Conduct active screening prevalence studies, in a number of U.S. locations and using a variety of sampling approaches, of adults born before 1987 and compare it with prevalence of teenagers born during or after 1987, using the same diagnostic criteria, and assess whether adult phenotype differs from teenage phenotype.		**6 million**	suggest NIEHS	Rigorous prevalence studies of adults are needed to confirm the contribution of the environment relative to diagnostic changes to the recent rise in autism cases, to assess whether the subtypes of ASD have changed over time by birth cohort as well as due to age, and to determine the need for services for adults alive today, including the need for rapid screening of adults so that they can get the services most effective for ASD.
LT 1.1 - Validate a panel of biomarkers that separately, or in combination with behavioral measures, accurately identify, before age 2, one or more subtypes of children at risk for developing ASD by 2014.	30 million	30 million	NICHD [AS, CDC, SARRC]	At least some biomarkers should be developed as a Short Term project. ARI should be part of this effort.
LT 1.2 - Develop five measures of behavioral and/or biological heterogeneity in children or adults with ASD, beyond variation in intellectual disability, that clearly relate to etiology and risk, treatment response and/or outcome by 2015.	40 million	40 million	ACC [AC, AS]	

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LT 1.3 - Identify and develop measures to assess at least three continuous dimensions of ASD symptoms and severity that can be used to assess response to intervention for individuals with ASD across the lifespan by 2016.	1.5 - 10 million	10 million	ACC [AS]	Response to treatment provides critical clues to subgroups who will benefit from an intervention. The higher amount should be budgeted.
LT 1.4 - Effectively disseminate at least one valid and efficient diagnostic instrument (e.g., briefer, less time intensive) in general clinical practice by 2016.	5 - 10 million	**zero**	CDC [ARI, AS, Dept of Ed, HRSA]	Dissemination (as oposed to dissemination research) should not be part of the IACC SP budget.
Q1 budget total (in $million) and % of SP total	**97.5 (20%)**	**93.5 (13%)**		

2. How Can I Understand What Is Happening?				
ST 2.1 - Establish an international network of brain and other tissue (e.g., skin fibroblasts) acquisition sites with standardized protocols for phenotyping, collection and distribution of tissue by 2010.	5 million	**40 million**	ACC [AS]	Several biobanks managed by a variety of institutions should be supported. Extensive resources with many patients, family members and controls will cost far more than $5 million. A more realistic and effective budget would be $40 million.
ST 2.2 - Support at least four research projects to identify mechanisms of metabolic and/or immune system interactions with the central nervous system that may underlie the development of ASD during prenatal or postnatal life by 2010.	6 million	**40 million**	ACC [AS, NIEHS, NIMH]	Four research projects to understand the biology of autism that can inform causality and lead to treatments are insufficient. Topics should include but not be limited to immune and metabolic. The number should be at least 25 and the budget increased accordingly. NIEHS should be the lead agency for many of these projects.
ST 2.3 - Launch three studies that specifically focus on the neurodevelopment of females with ASD by 2011.	8 million	8 million	None assigned	
LT 2.1 - Complete a large-scale, multi-disciplinary, collaborative project that longitudinally and comprehensively examines how the biological, clinical, and developmental profiles of children, youths, and adults with ASD change over time as compared to typically developing individuals by 2020.	50-100 million	100 million	ACC [AS, CDC]	The higher budget figure should be utilized to cover several approachesand populations. The Implementation workgroup mentioned supplementing the Denmark and Norway studies for this objective. U.S populations should be the primary focus. Expanding SEED and IAN is fine, but CHARGE should also be included.
Q2 budget total (in $million) and % of SP total	**119.0 (24%)**	**188.0 (25%)**		

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3. What Caused This To Happen & Can This Be Prevented?				
ST 3.1 - Initiate studies on at least five environmental factors identified in the recommendations from the 2007 IOM report "Autism and the Environment: Challenges and Opportunities for Research" as potential causes of ASD by 2010.	14 million	**56 million**	ACC [CDC, NIEHS, ARI, AS]	Studying only 5 environmental factors is inadequate. The number of factors should be expanded to 20, with a corresponding increase in budget, and should cover interaction between exposures, not single exposures exclusively. Mercury in its various and cumulative forms should be explicitly made an exposure for study. Populations in the U.S.and not just those in other countries should be used. NIEHS should be the lead agency for this initiative.
ST 3.2 - Coordinate and implement the inclusion of approximately 20,000 subjects for genome-wide association studies, as well as a sample of 1,200 for sequencing studies to examine more than 50 candidate genes by 2011.	40 million	**none**	NIMH [AC, AS, Simons Foundation]	Since genetic research is being adequately funded by private organizations, the NIH does not need to allocate dollars to this area.
ST 3.3 - Within the highest priority categories of exposures for ASD, validate and standardize at least three measures for identifying markers of environmental exposure in biospecimens by 2011.	2 million	**30 million**	NIEHS [ARI]	Three biomarkers of environmental exposures is inadequate given the number of potential biomarkers, exposures, and subtypes. Environmental research is underfunded but is the most likely to lead to effective treatments and prevention. Each biomarker is expected to cost $2 million. The number of biomarkers should increase to 10 and the dollars budgeted to $30 million. ARI should be part of this initiative.
ST 3.4 Study the effect of vaccines, vaccine components, and multiple vaccine administration through a variety of approaches, including cell and animal studies, and understand whether and how certain subpopulations in humans may be more susceptible to adverse effects of vaccines.		**6 million**	NIEHS/ARI	Congress, in passing the Combating Autism Act, asked for research on vaccines. The IOM report mentioned vaccine research, and parents are asking if there is a link. This research is necessary to ensure the health of all children.
ST 3.5 Initiate an epidemiological study to determine the health outcomes, including ASD, among various populations with vaccinated, unvaccinated, and alternatively vaccinated groups.		**10 million**	NIEHS/ARI	As noted above, vaccine research critical to address the health needs of children. This study or studies must be conducted by unbiased investigators.
LT 3.1 - Determine the effect of at least five environmental factors on the risk for subtypes of ASD in the pre and early postnatal period of development by 2012.	10 million	**50 million**	ACC	Studying only 5 environmental factors, and solely as a long term initiative, is inadequate. The number of factors should be expanded to 20 and should include exposure/exposure and exposure/pathogen mixtures. Some of these studies could be started immediately. Populations in the U.S. such as CHARGE, and not just those in other countries, should be used. NIEHS should be the lead agency for this initiative.

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LT 3.2 - Conduct a multi-site study of the subsequent pregnancies of 1000 women with a child with ASD to assess the impact of environmental factors in a period most relevant to the progression of ASD by 2014.	10 million	10 million	NIEHS [AS]	This is a good initiative and should be supported. The period of interest should be specified as the pre-natal and the first 3 years of life.
LT 3.3 - Identify genetic risk factors in at least 50% of children with ASD by 2014.	30 million	**none**	NIEHS [SARRC, AS]	Genetics research is being sufficiently funded by private organizations so there is no need for NIH to budget for it.
LT 3.4 - Support ancillary studies within one or more largescale, population-based epidemiological studies, to collect nested, case-control data on environmental factors during preconception, and during prenatal and early postnatal development, as well as genetic data, that could be pooled (as needed), to analyze targets for potential gene/environment interactions by 2015.	40 million	**50 million**	CDC [NIEHS, NIMH, NINDS]	The higher dollar estimate is needed to adequately address this issue, especially given the underfunding of environmental factors and the interaction between genetic susceptibility and exposures. It is important that U.S. populations be utilized for much of this work and that multiple approaches and investigator teams are used.
Q3 budget total (in $million) and % of SP total	146.0 (29%)	**212.0 (28%)**		

4. Which Treatment & Interventions Will Help?				
ST 4.1 - Launch four research projects that seek to identify biological signatures that measure significant improvement in ASD core symptoms across the lifespan by 2010.	7 million	**28 million**	NIMH [AS,AC]	Treatment research is desparately needed. The number of projects and the budget should be quadrupled.
ST 4.2 - Support three randomized controlled trials that address co-occurring medical conditions associated with ASD by 2010.	7.5 million	**30 million**	ARI [AS, ACC]	Treatment research is desparately needed. The number of projects and the budget should be quadrupled.
ST 4.3 - Conduct five randomized controlled trials of early intervention for infants and toddlers by 2011.	15 million	15 million	ACC	
ST 4.4 - Launch three randomized controlled trials of interventions for school-aged and/or adolescents by 2012	14 million	14 million	NIMH [AS, OAR]	
ST 4.5 - Standardize and validate three model systems (e.g. cellular and/or animal) that replicate features of ASD and will allow identification of specific molecular targets or neural circuits amenable to existing or new interventions by 2012.	5-7.5 million	7.5 million	NINDS [NIMH, AC]	
ST 4.6 - Test safety and efficacy of five widely used interventions (e.g., nutrition, medications, medical procedures, etc.) that have not been rigorously studied for use in ASD by 2012.	15 million	**60 million**	ACC [NCCAM, AS, ARI]	Treatment research is desparately needed. The number of projects and the budget should be quadrupled.

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ST 4.7 - Complete two multi-site randomized controlled trials of comprehensive early intervention that address core symptoms, family functioning and community involvement by 2013.	15 million	15 million	ACC [ASA, Dept of Ed, Easter Seals]	This initiative is needed and is supported.
LT 4.1 - Complete randomized controlled trials in humans on three medication targeting core symptoms by 2014.	12 million	**36 million**	ACC [AS, AC]	Treatment research is desparately needed. The number of projects and the budget should be tripled.
LT 4.2 - Develop interventions for siblings of people with ASD with the goal of reducing risk recurrence by at least 30% by 2014	6 million	6 million	ACC [AS]	
Q4 budget total (in $million) and % of SP total	99.0 (20%)	**211.5 (28%)**		

5. Where Can I Turn For Services?				
ST 5.1 -Initiate a "state of the states" assessment of existing state programs and supports for people and families living with ASD by 2009.	600,000	600,000	IACC Services Committee	
ST 5.2 - Support two studies that assess how variations and access to services affect family functioning in diverse populations by 2012	900,000	900,000	NIMH	
LT 5.1 - Test four methods to improve dissemination of effective interventions in diverse community settings by 2013.	6.3 million	6.3 million	IACC Services Committee	
LT 5.2 - Test the efficacy and cost-effectiveness of three evidence-based services for people with ASD of all ages in community settings by 2015.	7.5-10 million	**11.5 million**	NIMH	At least 4 services should be evaluated and more dollars allocated so that all people with autism are supported.
Q5 budget total (in $million) and % of SP total	17.8 (4%)	**19.3 (3%)**		

6. What Does the Future Hold?				
ST 6.1 - Develop and have available to the research community means by which to merge or link databases that allow for tracking the involvement of individuals in ASD research by 2010.	1.2 Million	**2.4 million**	NIMH	This amount should increase as there are a number of promising data sets that could be utilized if the funding were available. In addition to NDAR, the ARI/DAN data set should be linked.
ST 6.2 - Launch at least two studies to assess and characterize variation in adults living with ASD (e.g. social and daily functioning, demographic, medical and legal status) by 2011.	1.5 million	1.5 million	ASA [ACC, Easter Seals]	

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ST 6.3 - Conduct at least two clinical trials to test the efficacy and cost-effectiveness of interventions, services and supports to optimize daily functioning (e.g., educational, vocational, recreational, and social experiences) for adolescents, adults, or seniors living with ASD by 2012.	5 million	**7.5 million**	NIMH [AS]	At least 3 clinical trials should be conducted as there are numerous interventions which should and could be tested now.
ST 6.4 - Develop at least two community-based interventions with individual specificity that improves outcomes, as measured by educational, occupational, and social achievements by 2015.	8 million	8 million	NIMH [IACC Services Committee]	
ST 6.5 - Develop and have available to the research community means by which to merge or link administrative databases that allow for tracking the involvement of individuals living with ASD research in health care, education, and social services by 2018.	500,000	500,000	CDC [Dept of Ed, HRSA]	
Q6 budget total (in $million) and % of SP total	16.2 (3%)	**19.9 (3%)**		

Total Spending ($million)	**495.5**	**744.2****		$744 million is the amount designated in the CAA by Congress and it is the minimum amount that should be budgeted in the SP.

*Agency/organization codes: ACC=Autism Coordinating Committee; NICHD=National Institute for Child Health and Human Development; AS=Autism Speaks; AC=Autism Consortium (Harvard, Boston University, MIT, Tufts); ASA=Autism Society of America; HRSA=Health Resources & Services Administration; NIMH=National Institute of Mental Health; ARI=Autism Research Institute; SARRC=Southwest Autism Research & Resource Center; NIEHS=National Institute of Environmental Health Sciences; OAR=Organization for Autism Research; AAP=American Academy of Pediatrics; CDC=Centers for Disease Control & Prevention; NINDS=National Institute of Neurological Disorders & Stroke; NCCAM=National Center for Complementary & Alternative Medicine.

**** A minimum amount, designed to work within the budget of the CAA. Dollars should reflect the magnitude of the problem as determined by a cost of disease analysis.**